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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,183	03/19/2004	John L. Falconer	5-04	7410

23713 7590 03/07/2007  
GREENLEE WINNER AND SULLIVAN P C  
4875 PEARL EAST CIRCLE  
SUITE 200  
BOULDER, CO 80301

EXAMINER
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GREENE, JASON M

ART UNIT	PAPER NUMBER
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1724

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/805,183

Applicant(s)

FALCONER ET AL.

Examiner

Jason M. Greene

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 and 24-38 is/are pending in the application.
- 4a) Of the above claim(s) 30 and 31 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20, 24-29 and 36-38 is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-18 and 32-35 is/are rejected.
- 7) ☒ Claim(s) 9-11 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau. (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/30/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

### ***Response to Arguments***

1. Applicant's arguments, see page 12, line 11 to page 12, line 2, filed 8 December 2006, with respect to the rejection(s) of claim(s) 1, 5-7, 9, 12, 13 and 18 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yoshikawa et al. (US 6,503,294 B20 and Balkus, Jr. et al. (US 5,830,429).

2. Applicant's arguments, see page 13, line 22 to page 15, line 10, filed 8 December 2006, with respect to the rejection(s) of claim(s) 2-4 and under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yoshikawa et al. (US 6,503,294 B2) and Balkus, Jr. et al. (US 5,830,429).

3. Applicant's arguments, see page 13, lines 4-16 and page 16, line 29 to page 18, line 19, filed 8 December 2006, with respect to the 35 USC 102 and 103 rejections of

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claims 19, 20 and 24-29 have been fully considered and are persuasive. The 35 USC 102 and 103 rejections of claims 19, 20 and 24-29 have been withdrawn.

### ***Claims***

4. With regard to claims 19 and 20, the phrase "an approximately 50/50 CO<sub>2</sub>/CH<sub>4</sub> mixture" has been interpreted as being on a molar basis.

### ***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-8, 12, 13, 18 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US 6,503,294 B2) in view of Balkus, Jr. et al. (US 5,830,429).

Yoshikawa et al. discloses a method for making a crystalline SAPO-34 membrane comprising providing a porous ceramic or metal support having a pore size of 1  $\mu\text{m}$  (see col. 6, lines 5-21), preparing an aqueous SAPO-34 forming gel comprising a quaternary organic ammonium templating agent (tetraethyl ammonium hydroxide), contacting the porous support with the gel, heating the porous support and the gel to 190°C (463K) to form a layer of SAPO crystals on the surface of the support, calcining

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the SAPO layer at 423K to 873K to remove the templating agent, and washing and drying the support and SAPO layer in col. 6, lines 15-21, col. 13, lines 11-24 and col. 24, line 48 to col. 5, line 4.

Yoshikawa et al. does not teach aging the gel.

Balkus, Jr. et al. teaches aging and stirring a precursor gel for one hour to homogenize the gel in col. 7, line 57 to col. 8, line 15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the aging and stirring of Balkus, Jr. et al. into the method of Yoshikawa et al. to ensure the gel is homogenized to provide a uniform membrane layer.

The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

7. Claims 14-17 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US 6,503,294 B2) and Balkus, Jr. et al. (US 5,830,429), and further in view of the publication "Separation of Light Gas Mixtures Using SAPO-34 Membranes".

Yoshikawa et al. does not disclose repeating the steps recited in claim 1. The publication "Separation of Light Gas Mixtures Using SAPO-34 Membranes" (hereinafter "the publication") teaches repeating the steps until the membrane is impermeable to

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Nitrogen at page 780, col. 2, lines 9-37.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the step repeating of the publication into the method of Yoshikawa et al. to insure that the membrane is continuous and defect-free, as suggested by the publication at page 780, col. 2, lines 9-37.

***Allowable Subject Matter***

8. Claims 20, 24-29 and 36-38 are allowed.
9. Claims 9-11 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 9-11 and 36, the prior art made of record does not teach or fairly suggest the method of claims 1 or 36 wherein the gel is aged for at least 24 hours between about 290K and 300K.

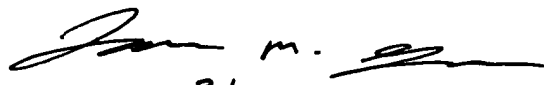
***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene  
Primary Examiner  
Art Unit 1724



3/4/07

jmg  
March 4, 2007